

Reply to Final Office Action
Dated April 1, 2004

Appln. No. 09/830,398

- 8 -

September 27, 2004

REMARKS

This is in response to the final Office Action dated April 1, 2004. Reconsideration is respectfully requested.

Request for Extension of Time

Applicant requests that the period for reply be extended three months, from July 1, 2004 to October 1, 2004. Applicant encloses herewith Credit Card Form PTO-2038 and authorizes the Office to charge \$475 in payment of the extension fee pursuant to 37 CFR 1.17(a)(3).

Request for Continued Examination

In view of the finality of the Action, applicant files this reply in conjunction with a Request for Continued Examination pursuant to 37 CFR 1.114. Applicant hereby authorizes the Office to charge \$385 as provided on enclosed Credit Card Form PTO-2038 in payment of the fee pursuant to 37 CFR 1.17(e).

Summary of Rejections

Claims 1-4, 14-17, 19, 20, 24-26 and 30-32 are pending and all are rejected as indefinite, the Examiner believing that the term "gap" as recited in Claims 1 and 30 is indefinite because it is unclear whether the gap is an empty space or filled with an expandible/contractible element.

Claims 1-4, 14-17, 19, 20, 24-26 and 30-32 are rejected as obvious over U.S. Patent No. 4,287,245 to Kikuchi alone, and for Claims 14, 15 and 17 over Kikuchi in view of UK Patent Application No. 2 296 749 to Villain. The Examiner also mentions the teachings of U.S. Patent No. 3,557,840 to Maybee, stating that Maybee discloses the invention as claimed. U.S. Patent No. 5,565,652 to Frye is also mentioned, but the

Reply to Final Office Action
Dated April 1, 2004

Appln. No. 09/830,398

- 9 -

September 27, 2004

Examiner does not expressly link this reference, or Maybee, to rejections of a specific claim or claims.

The Argument

Applicant respectfully traverses the rejections and provides below arguments in support of his position on a claim-by-claim basis.

Claim 1

Claim 1 is rejected as indefinite, the Examiner maintaining that the term "gap" is vague and indefinite because it is unclear whether the gap is an empty space or filled with contractable/expandible materials.

Applicant respectfully asserts that the term gap is not vague or indefinite. Gap is defined as "a separation in space" or "a break in continuity" according to Webster's Ninth New Collegiate Dictionary. Such a gap is clearly illustrated in Figure 3 by reference character 370 as a break in the continuity of the foam insulation layer 316. The gap is further described in the application on page 10, lines 5-15:

Foam insulation layer, 316
incorporates at least one suitable
internal contraction/expansion joint 370
formed along the length of modules 310 and
320. Joint 370 may take the form of a
part-cylindrical recess, occupied by a
suitable flexible material part-circular,
actually semi-circular, pre-form part 372
such as polyimide foam as above described,
designed and arranged to accommodate
expansion/contraction of the insulation
layer 316 of modules 310 and 320. Part
372 neatly fits the recess of joint 370.
As most contraction behaviour is observed
inwardly of about one third of the
distance from the insulation module 310
surface to the component surface, the
contraction/expansion joint 370 need not

Reply to Final Office Action
Dated April 1, 2004

Appln. No. 09/830,398

- 10 -

September 27, 2004

extend to the surface. It terminates at a suitably located terminal end 371.

With respect to the Examiner's concern about whether the gap is empty or filled, the description quoted above makes it clear that the expansion/contraction joint may constitute a recess (the gap) occupied by a foam part 372 which allows expansion and contraction. One of ordinary skill in the art would also know that if the gap or recess were empty it would also function as an expansion/contraction joint. Thus, whether the gap is filled or empty is irrelevant to its functioning as part of an expansion/contraction joint, and irrelevant to the claim since the claim (before amendment) recites a gap. Applicant also notes that, despite the Examiner's contention that the claim terminology is vague, the Examiner has apparently had no trouble understanding the invention and finding prior art which he considers relevant and can base rejections upon.

To better maintain consistency of terminology between the claims and the description, applicant has replaced the term "gap" with the term "recess" in Claim 1 and has added dependent Claim 33, which recites that the recess contains a flexible material. In view of the arguments presented above and the amendments, applicant respectfully contends that Claim 1 is not indefinite and requests that the rejection on this basis be withdrawn.

Claim 1 is further rejected as obvious over Kikuchi. However, Claim 1 as amended, recites an insulation module having a first insulation layer formed from a flexible material. Support for this amendment may be found on page 3, lines 17-24:

Reply to Final Office Action
Dated April 1, 2004

Appln. No. 09/830,398

- 11 -

September 27, 2004

The insulating layers must firstly include, proximate the insulated component, and most advantageously in contact with it, at least one first inner insulation layer of an insulation material, ideally a polymeric foam which retains flexibility and does not embrittle at cryogenic temperatures. Such foam layer accommodates thermal expansion/contraction behaviour of the insulated component and must therefore have appropriate thermal shock characteristics at cryogenic temperatures. Exemplary of such an insulating material is a polyimide foam.

Further support is found on page 8, lines 23-25:

Each module 310 and 320 has a first inner insulation layer 314 which forms a thermal shock absorption layer suitable for cryogenic applications and formed from a flexible polyimide foam.

Kikuchi teaches away from the recitation of a flexible insulation layer proximate to the surface of the item to be insulated as recited in Claim 1. As expressly stated at column 4, beginning at line 65, Kikuchi teaches a rigid insulation layer interfacing with the insulated item:

Examples of the foamed synthetic resin used for the heat-insulating panel element with a circular arc cross section include foams of polyisocyanate series such as a rigid polyurethane foam and polyisocyanurate foam, and cold-resisting foams such as an epoxy resin foam, a phenol resin foam and polystyrene foam.

Kikuchi clearly does not anticipate Claim 1 because it fails to teach: (1) a flexible insulation material proximate to a surface to be insulated; (2) a contraction/expansion joint positioned between the ends of the insulating module;

Reply to Final Office Action
Dated April 1, 2004

Appln. No. 09/830,398

- 12 -

September 27, 2004

and (3) the contraction/expansion joint comprising a recess that extends radially outwardly and terminating in spaced relation to a cladding layer, all of which are recited in Claim 1.

Furthermore, Kikuchi cannot properly be used to support an obviousness rejection of Claim 1 because there is no motivation to modify Kikuchi by the addition of a flexible insulating layer to obtain applicant's invention as claimed. One of the criteria necessary to establish a prima facie case of obviousness is that there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference teachings. However, there can be no motivation to modify a reference to obtain applicant's invention if the reference teaches away from applicant's invention. Kikuchi expressly teaches a rigid insulation material interfacing with the insulated item. Applicant's claim recites a flexible insulation material interfacing with the item. Kikuchi teaches the opposite of the applicant, and it is entirely unreasonable to posit that one of ordinary skill in the art would be motivated to do the opposite of the teachings of any reference and obtain applicant's invention. If anything, the fact that applicant has done the opposite of the prior art teachings (with success) is indicative of the non-obviousness of his invention.

Claim 1 is not obvious over Kikuchi because this reference fails to meet the requirements necessary to establish a prima facie case of obviousness in that there is no motivation to modify Kikuchi because it teaches away from applicant's invention as claimed.

Claims 2-4, 14-17, 19, 20, 24-26, 31 and 33 depend, either directly or indirectly, upon Claim 1 and should be

Reply to Final Office Action
Dated April 1, 2004

Appln. No. 09/830,398

- 13 -

September 27, 2004

allowable for the same reasons that Claim 1 is allowable. Furthermore, with the elimination of Kikuchi as the basis for an obviousness rejection, the Villain reference is no longer relevant with respect to Claims 14, 15 and 17, since this reference was cited merely for its teachings of joining methods and materials.

The Examiner has further remarked, on page 4 of the action, that "Maybe discloses the invention as claimed". This statement is not accurate because Maybe does not disclose an insulation module having an inner and an outer insulation layer, a water vapor barrier, a cladding layer or a contraction/expansion joint positioned between the ends of the module as recited in Claim 1. Applicant notes that the Examiner has not rejected any claims as anticipated by Maybe despite his assertion that this reference discloses the invention as claimed.

Applicant further points out that, although Maybe teaches an expansion joint comprising a gap filled with a foamed material, applicant's claim recites that the gap or recess is located between the ends of the module, not at the ends as taught in Maybe. Additionally, the gap or recess is recited as terminating in spaced relation to the cladding layer. This is not taught or suggested in Maybe or any of the other references cited. The fact that the joints "may be covered" as mentioned by the Examiner on page 3 of the Action is of no relevance to applicant's claimed invention. Applicant does not claim a "covered" expansion joint. Applicant claims an expansion joint comprising a recess that extends radially outwardly and terminates in spaced relation to a cladding layer. This is not a "covered" expansion joint and applicant's invention looks nothing like the joint disclosed in Figure 5 of Maybe. Applicant respectfully points out that the test for anticipation is not mere

Reply to Final Office Action
Dated April 1, 2004

Appln. No. 09/830,398

- 14 -

September 27, 2004

superficial similarity, but "[t]he identical invention must be shown in as complete detail as is contained in the ... claim". Richardson v. Suzuki Motor Co., 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

With respect to modifying Kikuchi using the spacers of Maybee as suggested by the Examiner on page 3 of the Action, neither Kikuchi nor Maybee teaches or suggests positioning the spacers in recesses or gaps that are positioned between the ends of a module as recited in Claim 1. Maybee teaches expansion joints having spacers and positioned at the ends of the modules. Thus, even if Kikuchi were modified by the teachings of Maybee, it would still not result in an insulation module as recited in Claim 1. It must be remembered that, to establish a prima facie case of obviousness, the prior art reference or references when combined, must teach or suggest all the claim limitations. Clearly, the combination of Kikuchi as modified by Maybee does not teach or suggest all claim limitations because the expansion joints would not be positioned between the ends of the modules as recited in Claim 1. Only the applicant teaches this feature.

Applicant again notes that Frye is not relevant to applicant's invention in that it is directed toward electrical line power transmission and does not teach spacers positioned in gaps or recesses of expansion joints of insulating modules as claimed by the applicant. Frye teaches, as shown in Figure 2 of that reference, spacers 36 which maintain an insulating cover 14 in radially spaced relation away from an electrical conductor 24. This use of spacers is not even superficially like applicant's use, and cannot reasonably form the basis of an obviousness rejection for lack of relevance.

Reply to Final Office Action
Dated April 1, 2004

Appln. No. 09/830,398

- 15 -

September 27, 2004

Claim 30

Similar to Claim 1, Claim 30 recites an insulation module having an inner layer formed from a flexible insulating material, and not a rigid material as taught in Kikuchi. As such, it should be allowable for the same reasons that Claim 1 is allowable. Furthermore, Claim 30 recites that the radially extending recesses that form the expansion joints are spaced apart longitudinally in each module portion. Such an arrangement is not taught or suggested in any of the cited references, nor would it be obvious to arrange expansion joints in such a manner. The prior art clearly teaches, by all of the examples cited as references, that the expansion joints in each module coincide with one another and are positioned at the ends of the modules, not between the ends as recited in Claims 1 and 30.

Claim 32 depends upon Claim 30 and should be allowable for the same reason that Claim 30 is allowable.

Summary

Applicant has demonstrated, by the arguments presented above, that Claims 1 and 30, as amended, are neither anticipated nor obvious over the cited references because: (1) the references alone do not teach or suggest all claim elements; (2) there is no motivation to modify the references;

SYNNESTVEDT & LECHNER LLP

Reply to Final Office Action
Dated April 1, 2004

Appln. No. 09/830,398


- 16 -

September 27, 2004

and (3) even when modified, the references do not teach or suggest all claim elements. Applicant contends that the claims are allowable and request that the rejections be withdrawn and the application passed to issue.

Respectfully submitted,

SYNNESTVEDT & LECHNER LLP

By: 
John A. Chionchio
Reg. No. 40,954

1101 Market Street, Suite 2600
Philadelphia, PA 19107-2950
Telephone: (215) 923-4466
Facsimile: (215) 923-2189

JAC/dml
Enclosures

M:\DLarsen\WATERMARK\24870USA\24870RCERESPONSE.37CFR116